

SUMMER WARBLERS OF THE CRAWFORD COUNTY,  
MICHIGAN, UPLANDS

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Little ornithological work has been done in Crawford County, Michigan. A few ornithologists have visited there, but no systematic study has been undertaken. My own work centers in the northeast corner of the county, about latitude 44°. Crawford County is a region of both upland and lowland. Publication of these notes on the uplands seems warranted at this time, because they provide a new breeding bird for Michigan (Palm Warbler), and add considerable data for others. It is hoped eventually to have a list of the birds of the county prepared and published, but a great amount of field work there still remains to be done.

I am indebted to Wm. G. Fargo for assistance in the field work and preparation of the manuscript, and to Milton B. Trautman for notes on his work in the county in 1925-6. I have received further assistance from A. D. Tinker and R. E. Olson, who have very kindly loaned me their notes. They have worked in the county both with me and independently.

The soil of Crawford County is mostly sand and gravel, consequently there is little successful agriculture. The northeast corner is typical of the whole country. It is wild and uninhabited. The North Branch of the Au Sable River flows southeast across the northeast corner. The North Branch follows roughly the inner edge of a terminal moraine. Back of the moraine, to the north and east, is a large outwash plain. The hills of the moraine are well rounded and rise not more than a hundred feet above this plain. The edge of the moraine, facing the plain, is a steep bluff-like slope.

The moraine was originally covered with a heavy white pine (*Pinus strobus*), red pine (*Pinus resinosa*), and mixed hardwood growth. The timber was removed forty or fifty years ago. Forest fires have burned the area many times, so that it is now a region of charred stumps and brush. A few red pines that survived the lumbermen and escaped the fire are occasionally found. They still bear deep fire scars.

The chief brush of the country is maple (*Acer saccharum*). The fires have burned the young trees so many times that they are now large clumps of suckers. There are numerous patches of thorns (*Crataegus*). Sweet fern (*Myrica asplenifolia*) grows luxuriantly and practically completes the cover.

North of the river there is a jack pine plain. It is situated on the outwash plain previously mentioned and is composed of Grayling sand. This jack pine plain is quite typical of nearly all such plains of Michigan. They are all more or less primeval and appear to be much as before the arrival of the white man. What little white and red pine remained scattered over the plains has been taken off. The jack pine has little commercial value, so has been left untouched by the lumberman. There are numerous scattered burns over the plains and in many places they have grown up into a short jungle-like growth "as thick as timothy hay".

The particular burn near the river where I carried on my investigations was formerly covered with large jack pines. The trees were thirty to sixty feet high with trunk diameters of six to ten inches. Most of the tall trees fell, though some still stand as stubs. The heat from the fires aids in liberating the seed. The jack pine is very prolific; the seed is very hardy and has a high germination percentage, so that thousands have sprouted and lived, to form, in 1930, a mass of fresh growth six to twelve feet high. In places it is so thick one has great difficulty in working through. It is so dense that the lower branches die young. Here, close to the ground, where it is open, we generally find our birds, and it is only by working low that they may be observed. The plains are very deficient in food in early summer, so that when the birds are not singing it takes an almost unbelievable amount of pecking and peering to locate them.

BLACK AND WHITE WARBLER. *Mniotilta varia*. August 6, 1931, I secured an immature bird from a mixed flock in the jack pine burn. The flock consisted of Chipping Sparrows, Nashville Warblers, and Chickadees. I do not think that it nests in the uplands but moves into the jack pines after the nesting period.

NASHVILLE WARBLER. *Vermivora ruficapilla ruficapilla*. This is a common nesting bird of spruce and cedar swamps. As soon as the young are able to fly, the whole family seems to move into the jack pines. June 30, 1930, great numbers of them were in the jack pines east of Grayling. I collected a male and a juvenile on that date. August 6, 1931, I found a flock of old and young in the burn near the North Branch, collecting two. The young, though well able to fly, constantly begged for food. On June 30 the males were singing even when feeding the full-grown young.

MYRTLE WARBLER. *Dendroica coronata coronata*. July 21, 1930, Josselyn Van Tyne and I collected a juvenile female Myrtle Warbler in the burn near the river. July 5, 1931, I secured a juvenile male

and female. The same day Mr. Tinker also took two, an adult male with a juvenile. August 7, N. A. Wood and I collected two more young birds. The Myrtle Warbler breeds in the swamps and appears to enter the jack pine only after the nesting season.

CHESTNUT-SIDED WARBLER. *Dendroica pensylvanica*. The Chestnut-sided Warbler is an abundant warbler of the hills south of the river. Mr. Trautman found them abundant in 1925.

KIRTLAND'S WARBLER. *Dendroica kirtlandi*. Kirtland's Warbler is a very common warbler of the jack pine burns. Due to the restricted number of suitable burns, it is doubtful if more than four or five thousand individuals are in existence.

The song and method of delivery of Kirtland's Warbler is decidedly unlike that of any member of the genus *Dendroica* of which I have field knowledge. I find no citations in literature that indicate a song approaching it. The song is loud, clear, and ringing, delivered with a tremendous gusto. The bird throws the head back, the body assumes a perpendicular attitude with the tail projecting downward. The notes seem to shoot forth, the body trembling with emotion. I have written this song as *ba tu' tu' weet' weet'*, accented as indicated.

Occasionally another song is heard, but I have not determined its significance. It may be expressed as *butte butte weet'' weet'' weet'' weet''*. There is no inflection and the accents are slight, as indicated. It is reminiscent of the alarm call of the Wood Thrush.

Kirtland's Warbler is probably a very old species. Its high specialization and restricted habitat leads one to believe that it has reached (and perhaps passed) the climax of racial senescence. The plumage, when compared with other members of the genus, shows that at similar molts it is in earlier stages of development. It retains the pattern of the early plumage for some time. It appears that at least two years are required for the complete plumage.

A number of other members of the genus, as mentioned elsewhere, share with the Kirtland the habit of tail-wagging. *Dendroica castanea* and *Dendroica striata* also show traces of this habit when young. It leads to the conclusion that this is an old character that is being lost. Some species have completely lost the habit, while others exhibit it in early life. This indicates a recapitulation of the tail-wag.. If so, we can readily perceive the direction of evolution of this habit.

The conclusions from the plumage and tail-wag agree in placing Kirtland's Warbler as the most primitive member of the genus. Possibly we may interpret the distinctive song in the same way.

If this is the oldest form, it is interesting to speculate on what the *dendroica* ancestor was like. It may have been a heavily streaked bird, living in a dense jungle. It probably had a very loud song, and continually wagged its tail. In the subsequent evolution of the race, this form failed to keep pace. Perhaps we should consider it as a sub-genus.

PINE WARBLER. *Dendroica vigorsi vigorsi*. The Pine Warbler is an abundant bird of the larger and older jack pines. Young fully-grown birds are found by the first of July. The adult birds stay in the taller jack pines except after the young are flying. Then they will be found in the burns with the young.

The song of the Pine Warbler is a simple trill. It is extremely difficult to distinguish it from the songs of a number of other species of the same general territory. The Eastern Chipping Sparrow (*Spizella passerina passerina*), Slate-colored Junco (*Junco hyemalis hyemalis*), Myrtle Warbler, and palm warbler, all have trills that resemble the song of the Pine Warbler. It is quite impossible for the listener to distinguish them with certainty. Musicians say that some of these songs are reiterations of the same tone, rather than trills.

The young Pine Warblers occasionally wag the tail in the manner of palm warblers. The adults were not seen to do this.

By late June the post-juvinal molt begins. It is first noticed in the wing coverts where a few new feathers appear. The molt continues through July and is completed about the middle of August. The sex of the young Pine Warblers may be determined in the field by the middle of July, the males being much yellower than the females. The males acquire a yellow breast and brownish-olive back while the females acquire a grayish-brown breast with a slight tinge of yellow, and a brown back.

The adults molt later than the young. The beginning of the molt is not constant, probably caused by prolonged attention to the young. The earliest sign of molt appeared July 24 in the males and a little later in the females. It progresses rapidly; by August 7 most birds are growing new tail feathers to replace the old ones which were shed simultaneously. The edgings of the fresh feathers are olive in the adults, the same as in the young.

WESTERN PALM WARBLER. *Dendroica palmarum palmarum*. June 3, 1931, I collected a male palm warbler in the burn near the river. The specimen is now number 67489 (original number W258) in the Museum of Zoology. As far as we have been able to ascertain, this is the first breeding specimen for Michigan. June 14, two more palm

warblers were collected, and three observed. A female was flushed from the ground. She trailed the ground for some distance, so the nest was not discovered. July 4, a fourth specimen was obtained. The young bird was not out of the nest more than a week or ten days. I saw another adult with a young bird but did not get it. July 5, a female was taken. She was with a fledgling barely able to fly, but the young bird was lost in the thick jack pines.

H. A. Olsen and R. E. Olsen, accompanied by L. H. Walkinshaw of Battle Creek, visited the spot June 15 and found two pairs of palm warblers carrying food. They located three young not able to fly, which the parents fed while they watched. Unfortunately the birds were not collected, though they were photographed and banded.

Altogether, I found fifteen adults and six young, of which number five adults and one young were collected. The palm warbler appears to be a rare breeding bird in the jack pine country.

The palm warbler is not a shy bird. Sometimes it fed within a few feet of the observer. It is said to be terrestrial to a great extent, though I failed to notice it on the ground for any appreciable length of time. The birds appeared to feed exclusively on insects and worms gleaned from the jack pines. The individual bird's territory seemed to occupy but a few acres. In feeding it prefers the denser growth, spending most of its time in the lower branches, generally within a few feet of the ground. It works the branches very thoroughly in a manner identical with that of Kirtland's Warbler. In the thinner growth, it worked to the upper branches, generally spiralling around the tree, then flew or rather dropped to the lower branches of an adjacent jack pine.

The most noticeable characteristic of the palm warbler is the wagging of the tail. The young bird also wagged its tail, though it was scarcely a month old. As it was breeding with Kirtland's Warbler I had every opportunity to compare the tail-wag of the two. I would say that the tail-wag of Kirtland's Warbler is more pronounced than that of the palm, and it is delivered with greater vigor. The kirtland wags its tail more frequently and continuously and the arc through which the tail moves is longer than the corresponding arc of the palm.

On its breeding grounds, the palm warbler was heard to have two distinct songs and an ordinary warbler *chip*. The first song, which appears to be the song of the mated or nesting bird, is delivered from a favorite perch, generally the tallest pine in the bird's territory. It is given with the body erect, the head thrown back and the tail point-

ing straight down. I have written the song as *hee''-u hee''-u hee'-u hee'-u*. The first notes are delivered slowly; the last two a little more rapidly; they are higher pitched and accented as indicated. The whole song, however, is delivered in a slow, unhurried manner. The tone is rich, soft, and liquid. It has a cool, distant quality.

The second song, which may be the courting song, is almost indistinguishable from the songs of the Pine Warbler or the Eastern Chipping Sparrow. Indeed, it bears a striking resemblance to the song of the Slate-colored Junco and Myrtle Warbler. However, the Pine Warbler sings only from the taller, older trees; the Western Palm Warbler prefers the fresh growth. The song is a trill, sweeter and more musical than the song of the Eastern Chipping Sparrow and stronger than the song of the Pine Warbler. It is generally given while the bird is moving (sometimes very rapidly) through the jack pines. The singing bird stays in the same territory, though he circles a great deal. Occasionally a feeding bird bursts out with this song. It is heard oftener than the song first described. I have written it *weet weet weet weet*, with no inflection.

NORTHERN PRAIRIE WARBLER. *Dendroica discolor discolor*. The distribution of the prairie warbler in Michigan is not very well known. In the past, observers have found it only in the southern part of the state and at rare intervals. May 10 to May 20, 1927, I found them in numbers migrating on Fish Point in Saginaw Bay. N. A. Wood found them on Charity Islands, also in Saginaw Bay, in 1911; Frothingham has reported seeing and hearing a male in an oak copse near Higgins Lake, Crawford County, July 6, 1905. Kitteredge saw one near Lovells, July 3, 1927.

July 3, 1931, prairie warblers were located in the hills south of the North Branch. It is a common bird in the cut-over and burned-over lands. It frequents the heavier and thicker parts of the brush country. July 2, I collected a female constructing a nest. July 4, a male and a fledgling barely able to fly were collected.

The males are found singing from the tops of the many dead trees, from an occasional jack pine or the lower branches of a red pine. In the last case they generally select a tree without branches for the first forty feet. The birds usually feed in the lower branches though frequently they are seen on the ground under the bushes. A very noticeable characteristic of the prairie warbler is the wagging of the tail, which occurs in both sexes and the young. The tail-wag is much slower and intervals between movements much longer in the

prairie than in the palm warbler. The arc through which the tail moves is shorter than the corresponding arc of the palm warbler.

The males are shy when singing, yet allow close approach when feeding. Sometimes they permit the observer to come within a few feet without visible alarm.

The call of the prairie warbler is a soft *chip*. The song is distinctive and easily recognized. It is a series of five or six notes that rise in pitch and volume with each succeeding note. It can be written as *dec dee dee dee dee dee*. There appears to be no individual variation. The song is weak, yet in the hill country it carries amazingly great distances, often eighty rods.

The nest that I found was well concealed in a bunch of hazelnut shoots. It was constructed of grasses woven together and placed in a fork twenty-four inches from the ground.

OVEN-BIRD. *Seiurus aurocapillus*. Frothingham lists the Oven-bird as common in the jack pine. I found them uncommon anywhere in the uplands, and, when seen, only near the edges of swamps. They are generally in the deciduous growth, though occasionally found in an old burn where the thick jack pines are from fifteen to thirty feet high.

NORTHERN YELLOW-THROAT. *Geothlypis trichas brachidactyla*. The Northern Yellow-throat is not uncommon throughout the dry sandhills south of the river. It is found in the same general territory as the prairie warbler. The birds sing constantly and are not difficult to find. I did not hunt a nest, but Milton Trautman found one June 28, 1925. He says, "It contained four eggs, was on the ground within one foot of a decaying log and sheltered by a sweet fern".

AMERICAN REDSTART. *Setophaga ruticilla*. A. D. Tinker and R. E. Olsen found one in a fresh growth of jack pine near the river, May 30, 1931.

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